

Abstract of the Disclosure

A flywheel energy storage system includes an energy storage flywheel supported for rotation about a substantially vertical axis on a combination bearing system comprised of a mechanical and a magnetic bearing. A motor and generator accelerates and decelerates the flywheel for storing and retrieving energy. The mechanical bearing is located at one axial end of the flywheel and provides axial downward force to the flywheel and is connected to the mechanical rolling element bearing using a low radial stiffness connecting element. The magnetic bearing is located at the axial end of the flywheel opposite the end with the mechanical bearing and provides axial upward force to support the weight of the flywheel, and also provides passive magnetic radial centering force to the flywheel.

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